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PAPERS FROM THE HARRIMAN ALASKA
EXPEDITION.

X.

ENTOMOLOGICAL RESULTS (4):

NEUROPTEROID INSECTS.

[PLATES XXVII-XXVIII.]

BY NATHAN BANKS.

THE Neuropteroid insects collected by Professor Kincaid on the Harriman Alaska Expedition represent thirty-four species. They may be tabulated as follows:

Pseudoneuroptera	II	
Perlidae		9
Ephemeridae		2
Neuroptera	I	
Hemerobiidae		1
Trichoptera	22	
Phryganeidae		1
Limnephilidae		16
Leptoceridae		3
Rhyacophilidae		2
Total	34	34

It will thus be seen that the great majority of the species belong to two families, Perlidae and Limnephilidae. As regards the affinities of the fauna we can deal with only the described species, twenty-five in number. These may be tabulated as follows:

Known from Washington State	10
Known from Colorado	4
Known from Europe	2
Known from Northern United States	6
Known from British America	2
Known from Alaska only	8

Leaving out the species restricted to Alaska (some of which will doubtless be found on the West Coast), it will be seen that the fauna is very similar to that of the State of Washington.

The Perlidæ are represented chiefly by species of moderate size; the Trichoptera are represented by many species of large size. As a whole the collection is more brightly colored than those of more temperate latitudes.

PSEUDONEUROPTERA.

Family PERLIDÆ.

Chloroperla imbecilla Say.

Chloroperla imbecilla SAY, LeConte Ed. Compl. Writ., I, p. 175, 1859.

Several specimens from Popof Island and Kukak Bay (July). Previously known from the Eastern States, Canada, and Washington.

Chloroperla pacifica Banks.

Chloroperla pacifica BANKS, Trans. Amer. Ent. Soc., p. 313, 1895.

Several specimens from Sitka (June) and Juneau (July). Described from Washington.

Chloroperla borealis Banks.

Chloroperla borealis BANKS, Trans. Amer. Ent. Soc., p. 313, 1895.

One specimen from Sitka (June). Described from Washington and Colorado.

Chloroperla decolorata Walker.

Chloroperla decolorata WALKER, Brit. Mus. Cat. Neur., p. 170, 1852.

Several from Popof Island and Kukak Bay (July). Previously known from British America and Canada.

Isopteryx cydippe Newman.

Isopteryx cydippe NEWMAN, Mag. Nat. Hist. (2), III, p. 88, 1839.

Four specimens from Sitka (June). Occurs in the northeastern States and Canada.

Nemoura cinctipes Banks.

Nemoura cinctipes BANKS, Trans. Amer. Ent. Soc., p. 21, 1897.

Four specimens: Sitka and Yakutat (June); Popof Island (July). Described from Washington.

Nemoura sp.

One specimen from Sitka (June). It is a small species, similar to *N. depressa* Banks, but apparently different.

Tæniopteryx sp.

Two specimens from Sitka (June). A rather large species with unmarked wings, except that the costal area is darker.

Leuctra sp.

Two specimens from Sitka (June); apparently like the eastern *L. ferruginea*, but the genitalia are different.

Family EPHEMERIDÆ.**Ephemerella grandis** Eaton.

Ephemerella grandis EATON, Riv. Mon. Eph., p. 128, 1886.

Several examples from Popof Island (July). Described from Colorado.

Bætis sp.

Two adults and a sub-imago: Popof Island (July). It is pale brown, with yellowish legs and white setæ.

NEUROPTERA.**Family HEMEROBIIDÆ.****Hemerobius pacificus** Banks.

Hemerobius pacificus BANKS, Trans. Amer. Ent. Soc., p. 24, 1897.

One specimen from Virgin Bay, Prince William Sound (June). Described from Washington.

TRICHOPTERA.**Family PHRYGANEIDÆ.****Neuronina lapponica** Hagen.

Neuronina lapponica HAGEN, Verh. Zool.-bot. Ges. Wien., p. 852, 1864.

Two specimens, from Kukak Bay (July), of a pretty *Neuronina* which agrees well with this European species in every respect. Not before recorded from the American Continent.

Family LIMNEPHILIDÆ.**Limnephilus gravidus** Hagen.

Limnephilus gravidus HAGEN, Syn. Neur. N. Amer., p. 257, 1861.

Two specimens from Virgin Bay (June). Described from North California; also occurs in Washington.

Limnephilus ornatus Banks.

Limnephilus ornatus BANKS, Trans. Amer. Ent. Soc., p. 27, 1897.

One specimen from Popof Island (July). Known from New Hampshire and Canada.

Limnephilus sitchensis Kolenati. Pls. XXVII, fig. 8; XXVIII, fig. 15.

Limnephilus sitchensis KOLENATI, Gen. e Sp. Trich., II, p. 276, 1859.

Limnephilus pacificus BANKS, Trans. Amer. Ent. Soc., p. 207, 1898.

Many specimens from Kukak Bay, Popof Island, Unga and Unalaska (July). Described from Alaska. My *L. pacificus* is from Washington. At the time of its description I had not access to Kolenati's work.

Limnephilus harrimani sp. nov. Plate XXVII, figs. 1 and 2.

Face yellowish, black hair on sides and yellow in middle; vertex black, silvery near eyes, black hair above, posterior warts yellow, with black hair, ocelli rather small; palpi yellow; antennæ with basal joint brown, beyond yellowish, faintly annulate with brown. Prothorax with rather short yellow hair; rest of thorax black, silvery on middle, with mostly black hair, some yellowish on the sides near base of fore wings; legs yellowish, spines black; abdomen brown. Fore wings yellowish hyaline, largely infuscate with pale brown, sometimes broken up into faint pale spots, bases of the apical cells (except first) hyaline, apex of the thyridial area and base of the first subapical cell also hyaline; several large irregular dark brown spots in thyridial cell, area and subapicals; costal area pale; radius considerably bent at pterostigma, discal cell nearly one-third longer than its pedicel, first and fifth apicals fully their width on discal cell and thyridial area, fourth apical narrow at base. Hind wings hyaline, rather yellowish on tips, yellowish veins and gray fringe; fourth apical cell narrow at base, third broad and with a brown dot. Length 14 mm.; expanse 26 mm.

Two specimens from Kukak Bay (July), and Sitka (June).

Type.—Cat. no. 5259, U. S. National Museum.

Limnephilus perjurus Hagen. Plate XXVIII, fig. 14.

Limnephilus perjurus HAGEN, Syn. Neur. N. Amer., p. 258, 1861.

Two specimens from Popof Island (July). Described from Alaska.

Limnephilus kincaidi sp. nov. Plate XXVII, fig. 5.

Face black, with some yellow hair; vertex black, with black hair above and some yellowish behind; ocelli rather small; palpi pale; antennæ with basal joints black, rest yellowish. Prothorax with yellow hair; rest of thorax black, yellow patagia with yellow hair, yellow hair in middle; legs bright yellowish, usually black on femora except the tips, spines black; abdomen black. Fore wings rather dirty yellow-

ish, sometimes clearer beyond the anastomosis, veins mostly yellowish brown, hair black; radius considerably bent at the pterostigma, discal cell not much longer than its pedicel, first and fifth apical cells about their width on discal cell and thyridial area, fourth apical narrow at base; cubitals fractured at the posterior anastomosis. Hind wings hyaline, rather yellowish at the pterostigma, veins pale, fringe black, fourth apical cell plainly narrower at base than third. Length 13 mm.; expanse 25 mm.

Three specimens from St. George Island, Bering Sea (July).

Type.—Cat. no. 5260, U. S. National Museum.

***Limnephilus nebulosus* Kirby.**

Plate XXVIII, fig. 12.

Limnephilus nebulosus KIRBY, Faun. Bor. Amer., p. 253, 1837.

Four specimens, which apparently belong to this species, from Virgin Bay, Prince William Sound (June), and Saldovia and Kukak Bay (July). Described from British America.

***Limnephilus* sp.**

Two specimens, from Popof Island and Kukak Bay (July), represent a small and probably undescribed species, but the material is not sufficient for study.

***Asynarchus punctatissimus* (Walker).**

Plate XXVII, fig. 6.

Hallesus punctatissimus WALKER, Brit. Mus. Cat. Neur., p. 17, 1852.

Four specimens from Popof Island and Farragut Bay (July). Occurs in Canada and Nova Scotia.

***Asynarchus simplex* sp. nov.**

Plate XXVII, fig. 3.

Head black, with black hair; palpi black; antennæ black, narrowly annulate with pale; ocelli of moderate size. Prothorax with long yellow hair, rest of thorax black, with black hairs in front of wings and yellowish near middle; legs pale yellowish, except the femora which are black, spines black; abdomen dark brown. Fore wings infuscated with pale brown, darker on pterostigma and along hind margin, veins brown, some faint pale spots beyond the anastomosis, hairs and fringe nearly black; radius considerably bent at pterostigma, the discal cell about one-third longer than its pedicel, first and fifth apical cells scarcely their width on discal cell and thyridial area, a brown dot in base of third apical, fourth as wide at base as third, the cubitals fractured at posterior anastomosis. Hind wings hyaline, with yellowish brown veins, pterostigma rather darker, fourth apical cell as wide as third at base. Length 14 mm.; expanse 27 mm.

Two specimens from St. Paul Island, Bering Sea.

Type.—Cat. no. 5261, U. S. National Museum.

***Asynarchus fumosus* sp. nov.**

Plate XXVII, figs. 7, 9, 10.

Face dark in middle, pale on sides, with yellowish hair; vertex black, warts black, with mostly yellowish hair; ocelli small; palpi pale yellowish; antennæ brown, annulate beyond basal joints with yellowish. Prothorax with long yellow hair; thorax black, with mostly yellowish hair; legs yellowish, femora infusate on bases, spines black; abdomen brown. Fore wings brown, shining; veins brown; rather yellowish in base of costal area; many scattered pale dots, most numerous just below the radius; a white mark near apex of thyridium, arculus white; several large whitish hyaline spots as follows: an oblique one in middle of the thyridial area and cell, one each in bases of first, second, fourth and fifth apical cells, a large one in apex of third apical, and a triangular one in apex of first and second subapicals (sometimes one or several of the discal marks are wanting); radius is bent at pterostigma, the discal cell is twice as long as its pedicel, the first apical is rather wide at apex and extends for about its width on discal cell; the fourth is as wide as the third at base, the fifth extends about its width on thyridial area, the cubitals are fractured at posterior anastomosis. Hind wings hyaline, slightly infusate on apex, a white dot in base of third apical cell; the fourth apical is broader at base than third. Length 15 mm.; expanse 29 mm.

Type.—Cat. no. 5262, U. S. National Museum.

Several specimens from Berg Bay (June); also occurs in Washington State. In one specimen the second apical sector fails to reach the margin in each hind wing.

***Asynarchus flavicollis* sp. nov.**

Plate XXVIII, figs. 11 and 13.

Face yellowish, with yellow hair; vertex black, posterior warts yellow, with yellow hair; ocelli small; palpi yellow; antennæ yellowish, faintly annulate with brown. Prothorax yellow, with yellow hairs; rest of thorax black, the patagia and meso-scutellum pale; abdomen yellowish on base, brown at tip; legs clear pale yellowish, spurs reddish, spines black. Fore wings whitish hyaline, largely marked with brown, veins mostly yellowish, brown toward tips, the white spaces of wing with white hair, the brown spaces with brown hair; the brown marks are as follows: space between subcosta and radius, the radial sector and its fork narrowly margined, the third apical cell, the apical half of the fifth apical cell, basal half of the first subapical, all of second and third subapicals, middle of thyridial area, and all but tip of thyridial cell, and along the cubital veins; the first apical is about its width on discal cell, fourth as wide as third at

base, fifth about its width on thyridial area, upper branch of cubitus fractured at posterior anastomosis, radius bent at pterostigma. Hind wings whitish hyaline, more yellowish at tip, veins yellowish; fourth apical cell is as wide as third at base. Length 18 mm.; expanse 34 mm.

Two specimens from Yakutat (June).

Type.—Cat. no. 5263, U. S. National Museum.

Asynarchus alascensis sp. nov.

Plate XXVIII, fig. 16.

Face yellowish, with pale yellow hair; vertex black, with pale yellow hair; ocelli large, looking outwards; posterior warts yellow; palpi pale; antennæ yellowish on base, brownish beyond, narrowly annulate with brown, or brown throughout. Prothorax with tufts of long yellow hair; rest of thorax black, with some yellow hair; legs yellowish, femora more or less infuscate on bases, spines black; abdomen brown. Fore wings dirty yellowish-hyaline, sparingly clothed with yellow hair, black on the veins; thyridial cell, except base, and first subapical cell, except tip, whitish, with silvery white hair; veins mostly brown, that closing the thyridial area, a point on thyridium and the arculus white; radius considerably bent at the pterostigma; first apical cell fully its width on discal cell; fifth acute at base, scarcely on thyridial area; cubitals fractured at posterior anastomosis. Hind wings grayish hyaline, rather yellowish beyond anastomosis; discal cell only about twice as long as broad at tip, fourth apical about as broad as third at base. Length 14.5 mm.; expanse 29 mm.

Four specimens: Berg Bay and Virgin Bay (June); Kukak Bay (July).

Type.—Cat. no. 5264, U. S. National Museum.

In one specimen the silvery marks are scarcely visible.

Halesus (?) **alascensis** sp. nov.

Plate XXVIII, figs. 19 and 20.

Face yellow, with black hair on sides and yellowish in middle; vertex brown with yellow hair, ocelli small, posterior warts yellowish, black hair behind the eye; antennæ yellowish; palpi pale, slender. Prothorax yellow, with yellow hair, rest of thorax black, gray on middle, meso- and meta-scutellum yellow, mostly yellow hair; legs rather dirty yellowish, spines black; abdomen brown. Fore wings yellowish in anterior half, brown on posterior half, the division marked by a silvery white line above and a black line below, a black spot at base of the fourth apical cell, pterostigma darker than the nearby regions; veins yellowish; costal region is very broad, apical margin of wing almost concave, membrane finely rugulose and clothed with fine hairs,

radius much bent at pterostigma, discal cell much longer than pedicel, fourth apical narrower than third at base, the cubitals fractured at posterior anastomosis. Hind wings yellowish hyaline, scarcely infuscate on tips, a brown dot in base of third apical cell; fourth apical acute at base. Length 18 mm.; expanse 35 mm.

One specimen from Yakutat (June).

Type.—Cat. no. 5265, U. S. National Museum.

***Apatania tripunctata* sp. nov.**

Plate XXVII, fig. 4.

Head black, with white and yellowish hairs; palpi and antennæ black. Thorax black, with short white hair; legs yellowish, femora black except the tips; abdomen black. Wings blackish, darkest beyond the anastomosis; veins black, with black hair; membrane with scattered yellowish hair, fringes black; three hyaline white spots; one on veinlet closing the thyridial area, one on thyridium, one at arculus; hind wings with a white mark at base of the fifth apical cell; in fore wing the first apical is about twice its width on discal cell fifth apical acute at base and not on thyridial area; cubitals fractured at the posterior anastomosis; discal cell one-half longer than its pedicel. Length 11 mm.; expanse 21 mm.

Several specimens from Yakutat (June).

Type.—Cat. no. 5266, U. S. National Museum.

***Apatania* sp.**

One specimen of a small black species from Kukak Bay (July).

Family LEPTOCERIDÆ.

***Molanna* sp.**

Two specimens of an ordinary-looking species from Popof Island and Kadiak (July).

***Mystacides nigra* (Linné).**

Phryganea nigra LINNÉ, Syst. Nat. (12), p. 909, 1768.

Several specimens from Yukatat (June). Widely distributed in Europe and the northern parts of this country.

***Heteroplectron* sp.**

One specimen from Popof Island (July). Apparently different from *H. californicum*.

Family RHYACOPHILIDÆ.

***Glossosoma alascensis* sp. nov.**

Plate XXVIII, figs. 17 and 18.

Black; antennæ yellowish on basal third (except basal joint); legs

brownish yellow, spurs brown, a few pale weak spines on middle and hind tibiae, in female the middle tibiae and first two joints of tarsi broadened and flattened. Wings infusate; veins black; hair mostly black, yellow in regions of pterostigma and arculus; fringes gray; veinlet closing thyridial area, a point on thyridium and the arculus are white; first apical cell is acute at base, but not pedicellate; in hind wings the fifth apical is long pedicellate. Male has a broad elongate plate on middle of base of the fifth ventral segment, and from each side at its base is a curved stout tooth, a spine on sixth and seventh segments. Length 8 mm.; expanse 14.5 mm.

Many specimens from Popof Island (July).

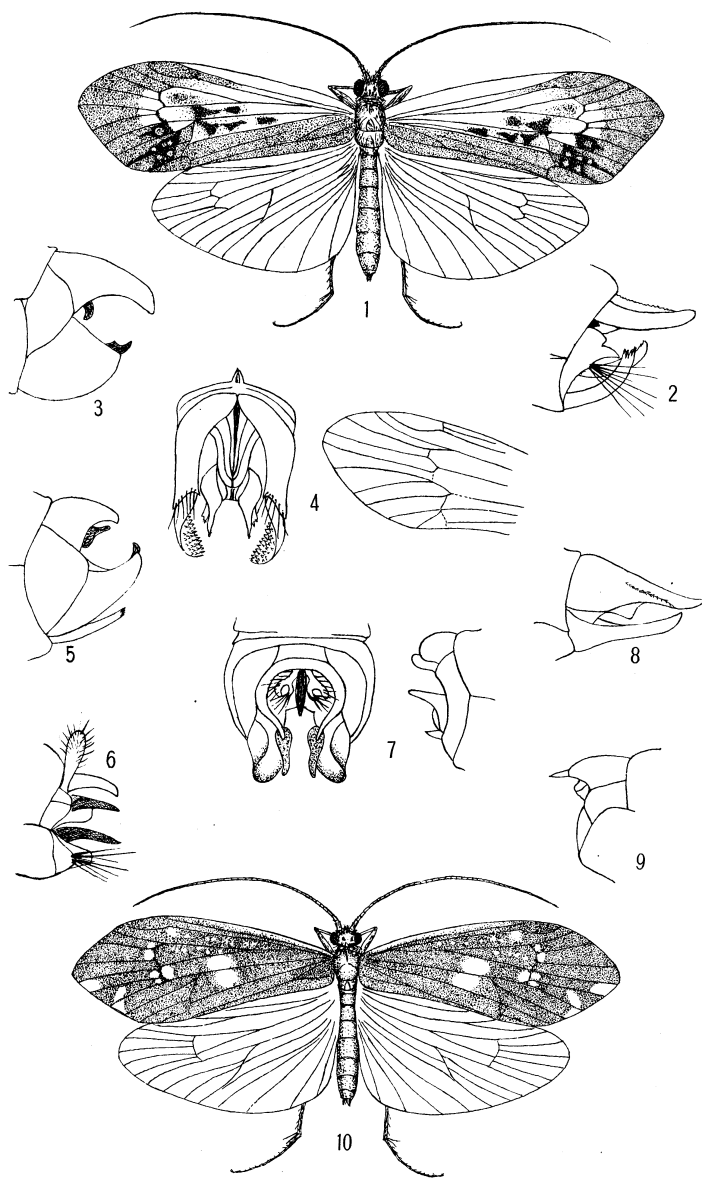
Type.—Cat. no. 5267, U. S. National Museum.

Glossosoma sp.

One specimen of a black species from Popof Island (July).

PLATE XXVII.

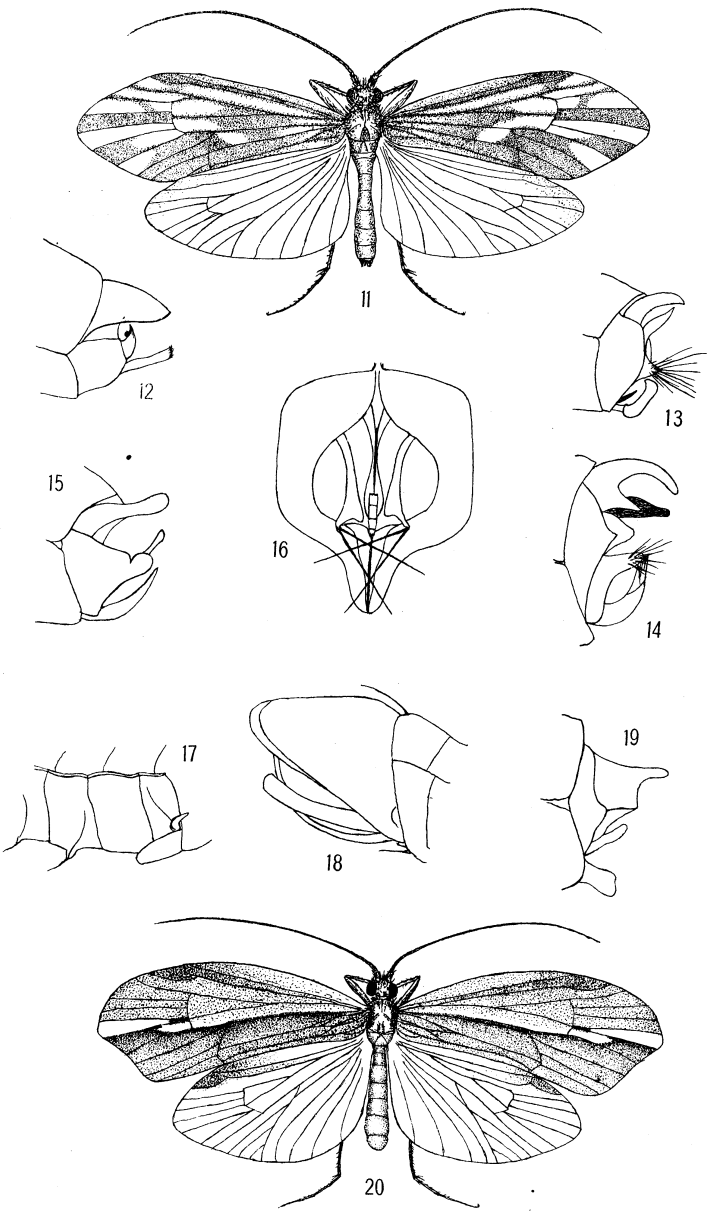
- FIG. 1. *Limnephilus harrimani*, insect.
2. *Limnephilus harrimani*, ♂ genitalia.
3. *Asynarchus simplex*, ♂ genitalia.
4. *Apatania tripunctata*, wing and ♂ genitalia.
5. *Limnephilus kincaidi*, ♂ genitalia.
6. *Asynarchus punctatissimus*, ♂ genitalia.
7. *Asynarchus fumosus*, ♂ genitalia.
8. *Limnephilus sitchensis*, ♀ genitalia.
9. *Asynarchus fumosus*, ♀ genitalia.
10. *Asynarchus fumosus*, insect.



Alaska Neuropteroids

PLATE XXVIII,

- FIG. 11. *Asynarchus flavicollis*, insect.
12. *Limnephilus nebulosus*, ♂ genitalia.
13. *Asynarchus flavicollis*, ♂ genitalia.
14. *Limnephilus perjurus*, ♂ genitalia.
15. *Limnephilus sitchensis*, ♂ genitalia.
16. *Asynarchus alascensis*, ♂ genitalia.
17. *Glossosoma alascensis*, venter.
18. *Glossosoma alascensis*, ♂ genitalia.
19. *Halesus alascensis*, ♂ genitalia.
20. *Halesus alascensis*, insect.



Alaska Neuropteroids